3. xDSL Series

xDSL Selection Table

R/Rack, L/Line card, S/Standalone, SW/Switch, C/Compact

A-DSL Family				
Network Type	**Product Name**	**Description**	**Product Type**	**Page**
ADSL	ALS-R50	6U, 19", 16 slots (384 loop max)	R	3-3
ADSL	ALS-R60	6.75U, 19", 20 slots (640 loop max)	R	3-4
ADSL	ALS-R100-32P	1U, 19", 3/4 slots (96 loop max)	R	3-5
ADSL	ALS-P10	ADSL MDF Type filtter	C	3-6
ADSL	ALS-12	ADSL splitter	C	3-7
ADSL	ALS-M12	ADSL/ VDSL micro filtter	C	3-7
ADSL	ALS-10-IT	Regional ADSL splitter for Italy	C	3-8
ADSL	ALS-10-UK	Regional ADSL splitter for UK	C	3-8
ADSL	ALS-10-FI	Regional ADSL splitter for Finland	C	3-8
ADSL	ALS-10-FA	Regional ADSL splitter for France	C	3-8
ADSL	ALS-10-EU/I	ADSL/ ISDN splitter	C	3-9
ADSL	ATU-R140	10/100M BASE TX to ADSL	S	3-10
ADSL	ATU-R210	(4) 10/100M BASE TX to ADSL	S	3-11
ADSL	MD-20	Digital Subscriber Line Access Multiplexer	S	3-12
G.SH-DSL Family				
Network Type	**Product Name**	**Description**	**Product Type**	**Page**
G.SHDSL TDM Series	SHRM03-E1	E1 to G.SHDSL, 2W/TDM	L	3-13
G.SHDSL TDM Series	SHRM03-V35	V.35 to G.SHDSL, 2W/TDM	L	3-13
G.SHDSL TDM Series	SHRM03-ET100	10/100 BASE TX to G.SHDSL, 2W/TDM	L	3-13
G.SHDSL TDM Series	SHDTU03-E1	E1 to G.SHDSL, 2W/TDM	S	3-15
G.SHDSL TDM Series	SHDTU03-V35	V.35 to G.SHDSL, 2W/TDM	S	3-16
G.SHDSL TDM Series	SHDTU03-ET100	10/100 BASE TX to G.SHDSL, 2W/TDM	S	3-17
G.SHDSL ATM Series	SHRM03-ET100R	10/100 BASE TX to G.SHDSL, 2W/ATM	L	3-18
G.SHDSL ATM Series	SHDTU03-ET10R	2-wire SHDSL router	S	3-19
G.SHDSL ATM Series	SHDTU03F-ET10R	2-wire SHDSL router with firewall protection	S	3-19
G.SHDSL ATM Series	SHDTU03A-	4-wire SHDSL router	S	3-19
G.SHDSL ATM Series	SHDTU03AF-ET10RS	4-wire SHDSL router with firewall protection	S	3-19
I-DSL Family				
Network Type	**Product Name**	**Description**	**Product Type**	**Page**
IDSL	I-DSL128	2-wire 2B1Q Leased Line Modem	S	3-20
IDSL	I-DSL64	2-wire 2B1Q Leased Line Modem	S	3-21

ADSL Splitter Series

ALS-R50

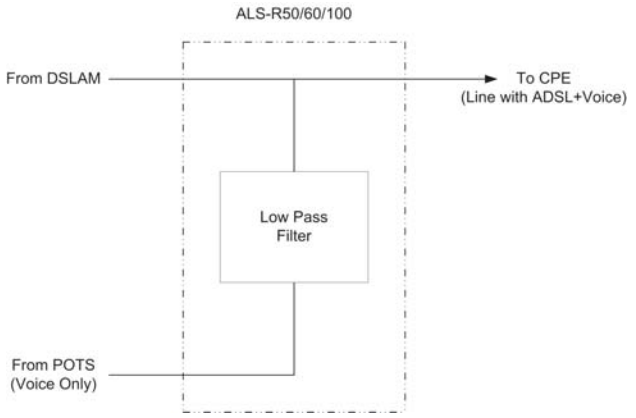
Rack Type Splitter

The ALS-R50 rack connections are organized into two-card sets. Each physical card provides 24 loops. A two card set provides 48 loops. Each card set provides high density connections to the central office DSLAM using 2-50 pin (2.54mm pitch) locking header connector and ribbon cables. Each ribbon Connector supports 24 loops. POTS and line connections are provided via two sets each of 12x4 wire wrap terminals.

Features

- 6U high 19" Rack
- Consists exclusively of all passive elements
- Designed for implementation of ADSL CO application
- Handles all POTS loop current from 0mA to 100mA
- If the power supply or ATU-C/ATU-R fails, telephone service on the ADSL line will operate normally
- Provides excellent isolation between DSL and POTS
- Up to 16 cards (384 loop max)

Application



Specifications

Standard	Annex E.2 of ITU-T G.992.1	
Impedance	900 ohms	
Insertion Loss	1004Hz short loop	1dB
	1004Hz Long loop	0.75dB
Attenuation distortion	200 to 3.4Khz short loop	-1.5 — 1.5dB
	3.4 to 300KHz short loop	-2 — 2dB
	200 to 3.4KHz long loop	-1.5 — 0.5dB
	3.4 to 300KHz long loop	-1.5 — 1dB
Cut off frequency	-3dB	8Khz
ADSL band Attenuation	30 — 300KHz	-65dB
	300 — 1104KHz	-55dB
Delay Distortion	600 — 3.2KHz	200us
	200 — 4KHz	250us
Return Loss	ERL	8dB
	SRL-L	5dB
	SRL-H	5dB
Common Mode Rejection Ration	600 — 3.2KHz	-100dB
DC Resistance	20Ohms	
Isolation resistance to	5M Ohms	
Longitudinal	200 — 1KHz	-60dB
	1 — 3KHz	-60dB
DC Current carrying capacity	100mA	
Environment	Temperature	-10 — 70°C (Operating); -15 — 80°C (Storage)
	Humidity	0 — 90% non condensing
Dimensions(WxDxH)	434mm x 285mm x 265.6mm	
Weight	18kg	

Ordering Info

ALS-R50-P	ADSL Line Splitter Rack, for CO application, w/wire wrap and 50pin locking ribbon cable connections
ALS-R50 24P-11 Card	ADSL Line Splitter Card, 24 Loops, 600 ohm, 8k Hz

ADSL Splitter Series
ALS-R60

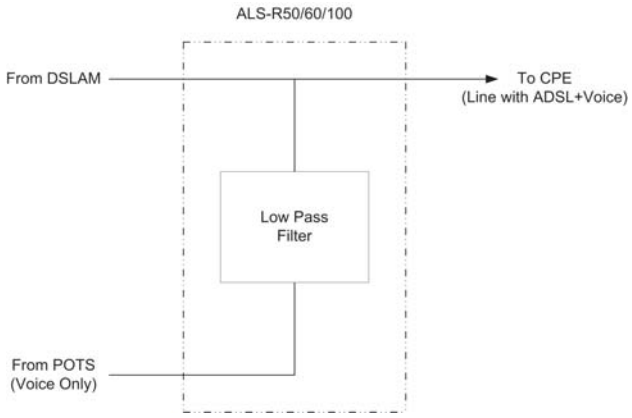
Rack Type Splitter

The ALS-R60 is a rack mount solution for central office or service providers, containing up to 20 cards with 32 each ADSL line splitters which provide low-pass filters designed to provide POTS (Plain Old Telephone System) service to a line that is utilizing ADSL technology. This device is designed to eliminate interference to POTS equipment by blocking the high frequency ADSL signal (20 KHz~12 MHz).

Features

- 8U high 19" Rack
- Consists exclusively of all passive elements
- Designed for implementation of ADSL/ ADSL2/ ADSL2+ CO application
- Handles all POTS loop current from 0mA to 100mA
- If the power supply or ATU-C/ATU-R fails, telephone service on the ADSL line will operate normally
- Provides excellent isolation between DSL and POTS
- Up to 20 cards (640 loop max)

Application



Specifications

Standard	Annex E.2 of ITU-T G.992.3	
Impedance	900 ohms	
Insertion Loss	1004Hz short loop	1dB
	1004 Hz Long loop	0.75dB
Attenuation distortion	200 to 3.4Khz short loop	-1.5 — 1.5dB
	3.4 to 300KHz short loop	-2 — 2dB
	200 to 3.4KHz long loop	-1.5 — 0.5dB
	3.4 to 300KHz long loop	-1.5 — 1dB
Cut off frequency	-3dB	8Khz
ADSL band	30 — 300KHz	-65dB
Attenuation	300 —1104KHz	-55dB
Delay Distortion	600 — 3.2KHz	200us
	200 — 4KHz	250us
Return Loss	ERL	8dB
	SRL-L	5dB
	SRL-H	5dB
Common Mode Rejection Ration	600 — 3.2KHz	-100dB
DC Resistance	20Ohms	
Isolation resistance to	5M Ohms	
Longitudinal	200 — 1KHz	-60dB
	1 — 3KHz	-60dB
DC Current carrying capacity	100mA	
Environment	Temperature	-10 — 70°C (Operating); -15 — 80°C (Storage)
	Humidity	0 — 90% non condensing
Dimensions(WxDxH)	436mm x 300mm x 300mm	
Weight	18kg	

Ordering Info

ALS-R60-8	ADSL Line Splitter Rack, for CO application, w/wire wrap and IDC 68pins cable connections
ALS-R60 32P-11 Card	ADSL Line Splitter Card, 32 Loops, 900 ohm, 8KHz

ADSL Splitter Series
ALS-R100

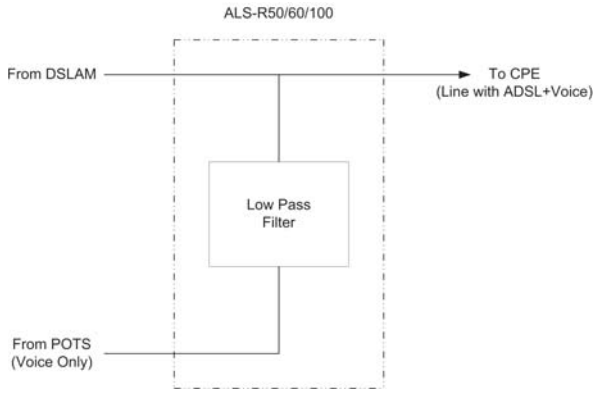
Rack Type Splitter

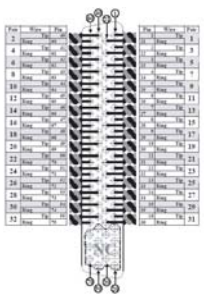
The ALS-R100 is a rack mount solution for central office or service providers, which nests up to 3 cards containing 32 each ADSL line splitters or up to a maximum 96 loops. The splitter provides low-pass filters designed to provide POTS (Plain Old Telephone System) service to a line that is utilizing ADSL technology. This device is designed to eliminate interference to POTS equipment by blocking the high frequency ADSL signal (20 KHz~1.1MHz).The design of the ALS-100 ensured that when maintenance job is performed on single loop, any insertion or removal will not cause any interruption on any telephone service for any users on this card module.

Features

- 1U high 19" Rack, supports stacking
- Consists exclusively of all passive components
- Designed for implementation of ADSL CO application
- Handles all POTS loop current from 0mA to 100mA
- If the power supply or ATU-C/ATU-R fails, telephone service on the ADSL line will operate normally
- Provides excellent isolation between DSL and POTS
- Up to 3 slots for 32 loops line card (96 loop max)
- When the telephone service is idle or occupied, any insertion or removal of the card module will not cause any service break

Application





PIN Assignment ALS-R100-32P

Specifications

Standard	Annex E.2 of ITU-T G.992.3	
Impedance	900 ohms	
Insertion Loss	1004Hz short loop	1dB
	1004 Hz Long loop	0.75dB
Attenuation distortion	200 to 3.4Khz short loop	-1.5 — 1.5dB
	3.4 to 300KHz short loop	-2 — 2dB
	200 to 3.4KHz long loop	-1.5 — 0.5dB
	3.4 to 300KHz long loop	-1.5 — 1dB
Cut off frequency	-3dB	8Khz
ADSL band Attenuation	30 — 300KHz	-65dB
	300 —1104KHz	-55dB
Delay Distortion	600 — 3.2KHz	200us
	200 — 4KHz	250us
Return Loss	ERL	8dB
	SRL-L	5dB
	SRL-H	5dB
Common Mode Rejection Ration	600 — 3.2KHz	-100dB
DC Resistance	20Ohms	
Isolation resistance to	5M Ohms	
Longitudinal	200 — 1KHz	-60dB
	1 — 3KHz	-60dB
DC Current carrying capacity	100mA	
Environment	Temperature	-10 — 70°C (Operating); -15 — 80°C (Storage)
	Humidity	0 — 90% non condensing
Dimensions(WxDxH)	443mm x 313mm x 44.5mm	
Weight	card:1.2kg; empty chassis: 4.15kg; total: 7.75kg	
Compliance	IEC61000-4-5 and FCC part 68	

Ordering Info

ALS-R100-CH	ADSL/VDSL Line Splitter Rack, for CO application, w/wire wrap 78 pin
ALS-R100-32P	ADSL/VDSL Line Splitter Card, 32 Loops, 600 ohm, 8k Hz

ADSL Splitter Series
ALS-P10

ADSL MDF Type Splitter

The ALS-P10 filters can be directly plugged into the existing terminals of the CO one by one, as needed, thus eliminating need for extra terminal blocks and cabling. This leads to lower costs compared with ordinary splitters, which require operators to install large splitter racks and equipment awaiting presumable future use. With Siemens/ Krone type terminals, no extra cabling or terminal blocks are needed at all; with Krone LSA Plus terminals only minor new cabling are needed. The plug type filters are easy to install onto the terminal blocks; no tools are needed.

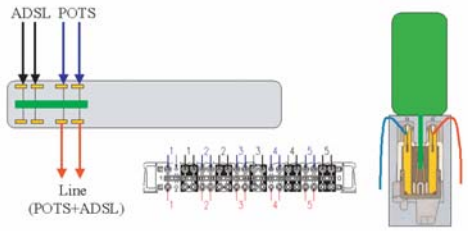
Filters act like disconnection plugs: the contacts inside the terminal are disconnected and the filter connects in series to the pair. Individual filters can be plugged adjacent to each other and they don't block neighboring pairs from insertion of new wires. Thus ADSL can be connected to subscribers independently, which is an asset. The plug type splitter requires the space of two pairs of LSA Plus terminal block.

Features

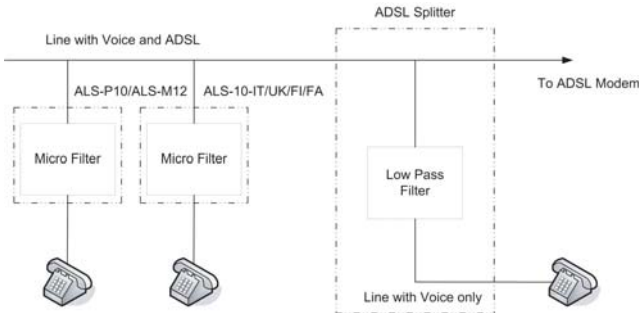
- Individual splitter
- Integrates directly in MDF, no racks required
- Minimum number of contact points
- POTS service available with splitter removed (make-before-break)
- Various splitter designs available (POTS, ISDN, ...)
- Tinned Krone LSA Plus test plug reed connectors

Specifications

Filter Type	Low pass	corner freq. 7kHz (±1kHz), optimal matching 600ohms, DC path max. 100mA
	High pass	corner freq. 22kHz (±2kHz), optimal matching 135ohms, no DC path
Over voltage	Filter adapted to POTS voltages (max.±200V)	
Dimensions(WxDxH)	18mm x 104mm x 20mm	
Weight	45g	



Application



Ordering Info

ALS-P10	ADSL MDF Type Splitter

ADSL Splitter Series

ALS-12/ ALS-M12

ADSL Splitter and Micro Filter

The ALS-12/ ALS-M12 are low-cost, compact, passive low-pass filters designed to provide POTS (Plain Old Telephone System) service to a line that is utilizing ADSL/VDSL technology. This device is designed to eliminate interference to POTS equipment by blocking high frequency energy (20 KHz~12MHz).

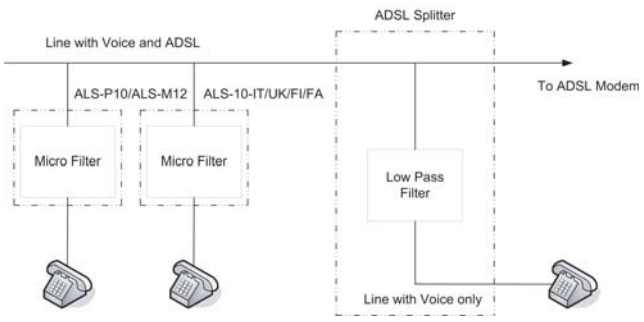
ALS-12

ALS-M12

Features

- Compact size
- Consists exclusively of all passive elements
- Designed for implementation of ADSL CPE application
- Handles all POTS loop current from 0mA to 100mA
- If the power supply or ATU-C/ATU-R fails, telephone service on the ADSL line will operate normally
- Provides excellent isolation between DSL and POTS
- The POTS splitter at remote end shall provide the RJ-11 connector for ATU-R/VTU-R line interface
- The POTS splitter and Low-pass filter shall provide the RJ-11 connectors for ADSL/VDSL line interfaces as well as POTS interface of splitter/Low-pass filter at remote end

Application



Specifications

Standard	Annex E.2 of ITU-T G.992.3	
Impedance	600 Ohms	
Insertion Loss	1004Hz short loop	1dB
	1004 Hz Long loop	0.75dB
Attenuation distortion	200 to 3.4Khz short loop	-1.5 — 1.5dB
	3.4 to 300KHz short loop	-2 — 2dB
	200 to 3.4KHz long loop	-1.5 — 0.5dB
	3.4 to 300KHz long loop	-1.5 — 1dB
Cut off frequency	-3dB	10KHz
ADSL band Attenuation	30 — 300KHz	65dB
	300 — 1104KHz	55dB
Delay Distortion	600 — 3.2KHz	200us
	200 — 4KHz	250us
Return Loss	ERL	6dB
	SRL-L	5dB
	SRL-H	3dB
Common Mode Rejection Ration	600 — 3.2KHz	-100dB
DC Resistance	20Ohms	
Isolation resistance to	5MOhms	
Longitudinal	200 — 1KHz	58dB
	1 — 3KHz	53dB
DC Current carrying capacity	100mA	
Environment	Temperature	-10 — 70°C (Operating); -15 — 80°C (Storage)
	Humidity	0 — 90% non condensing
Dimensions(WxDxH)	ALS-12	45mm x 34mm x 24mm
	ALS-M12	45mm x 34mm x 24mm
Weight	ALS-12	70g
	ALS-M12	70g

Ordering Info

ALS-12	ADSL Line Splitter for ADSL/VDSL CPE application, 600 ohm, 8K Hz , DSL is RJ-11
ALS-12-C	ADSL Line Splitter with surge protector for ADSL/VDSL CPE application, 600 ohm, 8K Hz , DSL is RJ-11
ALS-M12	The ADSL/ VDSL micro Filter

ADSL Splitter Series

ALS-M10-IT/ UK/ FI/ FA

Regional ADSL/VDSL Splitters and Micro Filter

The ALS-10-IT/ UK/ FI/ FA are low-cost, compact, passive low-pass filter designed to provide POTS (plain Old Telephone System) service to a line that utilizing ADSL technology. This device is designed to eliminate interference to POTS equipment by blocking high frequency energy (20 KHz~1.1MHz).

ALS-M10-IT(ITALY)

ALS-M10-UK(UK)

ALS-M10-FI(Finland)

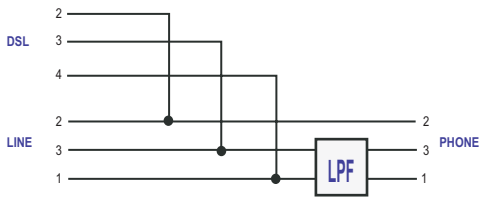
ALS-M10-FA(FRANCE)

Features

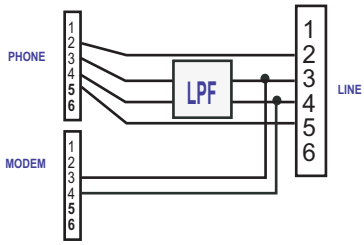
- Compact size
- Consists exclusively of all passive components
- Designed for implementation of ADSL/VDSL CPE application
- Handles all POTS loop current from 0mA to 100mA
- If the power supply or ATU-C/ATU-R fails, telephone service on the ADSL line will operate normally
- Provides excellent isolation between DSL and POTS
- The POTS splitter at remote end shall provide the RJ-11 connector for ATU-R/VTU-R modem interface
- The POTS splitter and Low-pass filter shall provide the Regional connectors for ADSL/VDSL line interfaces as well as POTS interface of splitter/Low-pass filter at remote end

Ordering Info

ALS-10-IT	Italy standard ADSL Splitter
ALS-10-UK	UK standard ADSL Splitter
ALS-10-FI	Finland standard ADSL Splitter
ALS-10-FA	France standard ADSL Splitter



ALS-M10-IT/ UK/ FI



ALS-M10-FA

Specifications

Standard	Annex E.2 of ITU-T G.992.3.	
Impedance	600 Ohms	
Connector	RJ-11	
Insertion Loss	1004Hz short loop	1dB
	1004 Hz Long loop	0.75dB
Attenuation distortion	200 to 3.4Khz short loop	-1.5 — 1.5dB
	3.4 to 300KHz short loop	-2 — 2dB
	200 to 3.4KHz long loop	-1.5 — 0.5dB
	3.4 to 300KHz long loop	-1.5 — 1dB
Cut off frequency	-3dB	12KHz
ADSL band Attenuation	30KHz	-25dB
	50KHz	-40dB
Delay Distortion	600 — 3.2KHz	200us
	200 — 4KHz	250us
Return Loss	ERL	6dB
	SRL-L	5dB
	SRL-H	3dB
Common Mode Rejection Ration	600 — 3.2KHz	-100dB
DC Resistance	20Ohms	
Isolation resistance to	5MOhms	
Longitudinal	200 — 1KHz	58dB
	1 — 3KHz	53dB
DC Current carrying capacity	100mA	
Environment	Temperature	-15 — 70°C (Operating); -10 — 80°C (Storage)
	Humidity	15 — 90% non condensing
Dimensions(WxDxH)	ALS-M10-IT	TBA
	ALS-M10-UK	TBA
	ALS-M10-FI	TBA
	ALS-M10-FA	TBA
Weight	ALS-M10-IT	TBA
	ALS-M10-UK	TBA
	ALS-M10-FI	TBA
	ALS-M10-FA	TBA
Compliance	ITU-T K.21	

ADSL Splitter Series
ALS-10-EU/I

ADSL ISDN Splitter

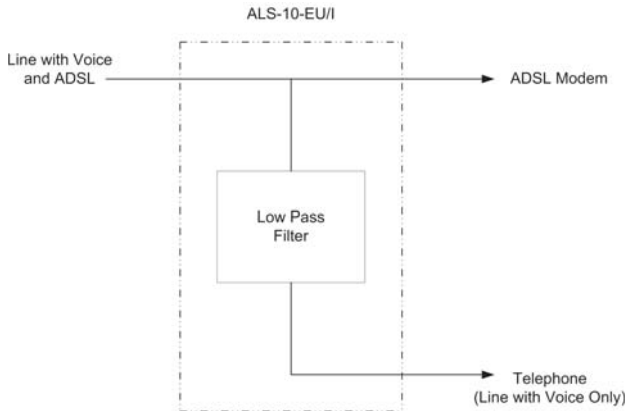
The ALS-10-EU/I is a low-cost, compact, designed to implement the functionality of low pass filter in ISDN-BA with 2B1Q or 4B3T baseband linecodes over ADSL application. It integrates low pass filters that block the high frequency energy from reaching the ISDN-BA device and provide isolation from impedance effects of the ISDN-BA device on ADSL. Because the ISDN splitter connects directly to the subscriber loop media, it must also provide some protection for externally induced line hits or faults which could damage any attached equipment or endanger humans interacting with the installed equipment.

The circuit protection will be provided mostly by standard central office line protection means and additional protection measures built into splitter to protect against line overstress which could damage the splitter itself. The electrical and transmission specification is based on ETSI TS 101 952-1-3 V1.1.1 for ISDN-BA requirements.

Features

- Consists exclusively of all passive components
- Designed for implementation of ADSL CPE application
- Handles all ISTN loop current from 0 to 60 mA
- If the power supply or ATU-C/ATU-R fails, telephone service on the ADSL line will operate normally
- Provides excellent isolation between DSL and ISDN

Application



Specifications

Standard	ETSI TS 101-952-1-3 V.1.1.1	
Impedance	135/ 150 Ohms	
Isolation	Wire A to B	5 Mohms
	DC resistance	12.5 Ohms
Insertion loss	1 — 40KHz	0.8dB
	40 — 80KHz	2dB
	1 — 60KHz	1.2dB
	60 — 80KHz	2dB
Insertion loss in ADSL band	150 — 1104KHz	65dB
Insertion loss between ADSL port to LINE port	120 — 170KHz	2dB
	170 — 1104KHz	1dB
Return loss at ISDN port	1 — 40KHz	16dB
	40 — 80KHz	14dB
	1 — 60KHz	16dB
	60 — 80KHz	14dB
Unbalance about earth	300 — 30KHz	40dB
	30 — 1104KHz	46dB
	1104KHz — 3MHz	40dB
Group delay distortion	300 — 80KHz	20us
Environment	Temperature	-10 — 60°C (Operating); -10 — 80°C (Storage)
	Humidity	15 — 90% non condensing
Dimensions(WxDxH)	56mm x 86mm x 26mm	
Weight	70g	
Compliance	Annex E.2 of ITU-T G.992.1	

Ordering Info

ALS-10-EU/I	European standard ADSL Splitter for ISDN

ADSL Modem Series
ATU R-140

ADSL2+ Bridge/ Router Modem

The new standards ADSL 2 and ADSL 2+ provide greater reach and higher data rates. The two technologies were developed side by side, and are downwardly compatible with the existing G.992.1 ADSL standard. ADSL 2+ (G.992.5) brings ADSL access to users who until now were located too far from the operator's central office. The increased reach is possible because of new modulation techniques in conjunction with improved error correction through trellis coding.

Essentially an upgrade to traditional ADSL technologies, ADSL 2+ brings the possibility of multi-megabit bandwidth and greater reach for broadband services,meaning easy deployment and expansion into rural areas, where coverage is low. With up to 24 megabit connections possible, mass-market applications such as video on demand, premium access and networked gaming are improved tremendously.

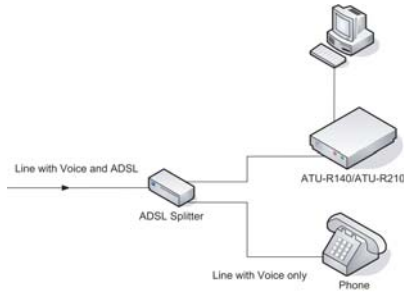
Features

- Texas Instruments Chip solution
- ADSL/ADSL2/ADSL2+ supported
- All Digital Loop ADSL supported
- Comprehensive Firewall & Security Function
- Cost-effective sharing of a single DSL connection
- Ethernet supported for LAN connection
- Reach Extended ADSL2 (READSL2) supported
- UPnP NAT Traversal & Device Identification supported
- USB Interface (Optional)
- Web-based interface for easy configuration

Specifications

General Specification		
Physical Interface	WAN	One ADSL line RJ-11 port
	LAN	Four LAN RJ-45 port for 10/100M Ethernet LAN connection
Power	9VDC, AC Power Adapter for 110VAC or 220VAC	
Environment	Temperature	0 — 40°C (Operating); -20 — 70°C (Storage)
	Humidity	10 — 90%
Power Consumption	10W	
LEDs	INTERNET/PPP, PWR, WAN, LAN	
Dimensions(WxDxH)	145mm x 175mm x 34mm	
Weight	230g	
Compliance	FCC Part 15, CE	

Application



Specifications

Software Specifications	
ADSL Modem	ANSI T1.413 issue 2
	All Digital Loop ADSL
	G.994.1 (G.hs, Multimode)
	ITU-T G.992.1 (G.dmt)/ITU-T G.992.2 (G.lite)
	ITU-T G.992.3 (ADSL2 G.dmt.bis)/ ITU-T G.992.4(ADSL2.G.lite.bis)
	ITU-T G.992.5 (ADSL2+, Annex A, B, I, J, L & M)
PPP supports	PPP over ATM PVC (RFC2364)
	PPP over Ethernet (RFC2516)
	PPP authentication:PAP, CHAP & MS-CHAP
Security	Demilitarized Zone (DMZ) Management
	Utility Password-protected
	Deny of Service (DoS) protection
	Firewall with NAT
	Packet Filtering ; Content Filtering
	Stateful Packet Inspection (SPI) firewall
	VPN pass through (IPsec, PPTP)
ATM Attributes	Adaptation Layers AAL5, AAL2 and AAL0 are supported
	OAM F4/F5 loop back
	Up to 8 PVCs
Bridge Mode	Bridge Filtering
	IEEE 802.1D transparent bridging
	RFC 1483 Bridge
Router Mode	DHCP (RFC1541) Server, Relay and Client
	DNS relay/ IGMP v1 and v2/ ToS supported
	Network Address Translation (NAT)/ Network Address Port Translation (NAPT)
	RFC 1483 Route/ IPoA (RFC1577)
	RIP 1 & 2 supported
Regulatory Approvals	FCC Part 15 ; FCC Part 68, CE, LVD (upon customer's request)
Quality of Service (QoS)	Constant Bit Rate (CBR), Real-Time Variable Bit Rate (VBR-rt), Non-Real-Time Variable Bit Rate (VBR-nrt) and Unspecified Bit Rate (UBR)
Management	Remote/ local configuration & management through SNMP v1/v2, web and telnet
	Firmware upgrade and reset to default via Web management

Ordering Info

ATU-R140A	ADSL2/2+ Bridge/ Router Modem with RJ-11 & RJ-45, Annex-A
ATU-R140B	ADSL2/2+ Bridge/ Router Modem with RJ-11 & RJ-45, Annex-B

ADSL Modem Series
ATU R-210

ADSL2+ Bridge/ Router Modem

The new standards ADSL 2 and ADSL 2+ provide greater reach and higher data rates. The two technologies were developed side by side, and are downwardly compatible with the existing G.992.1 ADSL standard. ADSL 2+ (G.992.5) brings ADSL access to users who until now were located too far from the operator's central office. The increased reach is possible because of new modulation techniques in conjunction with improved error correction through trellis coding.

Essentially an upgrade to traditional ADSL technologies, ADSL 2+ brings the possibility of multi-megabit bandwidth and greater reach for broadband services,meaning easy deployment and expansion into rural areas, where coverage is low. With up to 24 megabit connections possible, mass-market applications such as video on demand, premium access and networked gaming are improved tremendously.

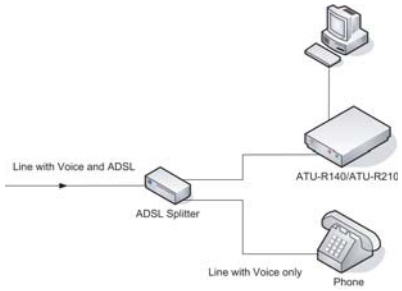
Features

- Broadcom Chip solution
- ADSL/ADSL2/ADSL2+ supported
- Asymmetrical data rate up to 24 Mbps downstream and upstream up to 2.5 Mbps
- Browser-based configuration environment
- Firmware upgrade available from TFTP via Ethernet port
- Support both bridging or routing and PPP function modes
- Support ITU-T G.992.3, ITU-T G.992.4 & ITU-T G.992.5

Specifications

General Specification		
Standard	ITU-T G.992.1, G.992.2, G.992.3, G.992.4, G.992.5	
Physical Interface	WAN	One ADSL line RJ-11 port
	LAN	Four LAN RJ-45 port for 10/100M Ethernet LAN connection
Power	15 VDC, AC Power Adapter for 110VAC or 220VAC	
Environment	Temperature	0 — 40°C (Operating); -20 — 70°C (Storage)
	Humidity	10 — 90%
Power Consumption	10W	
LEDs	INTERNET/PPP, PWR, WAN, LAN	
Dimensions(WxDxH)	145mm x 130mm x 34mm	
Weight	250g	
Compliance	FCC Part15,16 CE	
MTBF	60000 hrs	

Application



Specifications

Software Specifications	
ADSL Modem	ANSI T1.413 issue 2 All Digital Loop ADSL G.994.1 (G.hs, Multimode) ITU-T G.992.1 (G.dmt)/ ITU-T G.992.2 (G.lite) ITU-T G.992.3 (ADSL2 G.dmt.bis)/ ITU-T G.992.4(ADSL2.G.lite.bis) ITU-T G.992.5 (ADSL2+, Annex A, B, I, J, L & M)
PPP supports	PPP over ATM PVC (RFC2364) PPP over Ethernet (RFC2516) PPP authentication:PAP, CHAP & MS-CHAP
Security	Demilitarized Zone (DMZ) Management Utility Password-protected Deny of Service (DoS) protection Firewall with NAT Packet Filtering ; Content Filtering Stateful Packet Inspection (SPI) firewall VPN pass through (IPsec, PPTP)
ATM Attributes	Adaptation Layers AAL5, AAL2 and AAL0 are supported OAM F4/F5 loop back Up to 8 PVCs
Bridge Mode	Bridge Filtering IEEE 802.1D transparent bridging RFC 1483 Bridge
Router Mode	DHCP (RFC1541) Server, Relay and Client DNS relay/ IGMP v1 and v2/ ToS supported Network Address Translation (NAT)/ Network Address Port Translation (NAPT) RFC 1483 Route/ IPoA (RFC1577) RIP 1 & 2 supported
Regulatory Approvals	FCC Part 15 ; FCC Part 68, CE, LVD (upon customer's request)
Quality of Service (QoS)	Constant Bit Rate (CBR), Real-Time Variable Bit Rate (VBR-rt), Non-Real-Time Variable Bit Rate (VBR-nrt) and Unspecified Bit Rate (UBR)
Management	Remote/ local configuration & management through SNMP v1/v2, web and telnet Firmware upgrade and reset to default via Web management

Ordering Info

ATU-R210	Standalone ADSL2+ Bridge/Router Modem, with 4-port switch HUB

ADSL2+ Mini DSLAM
MD-20

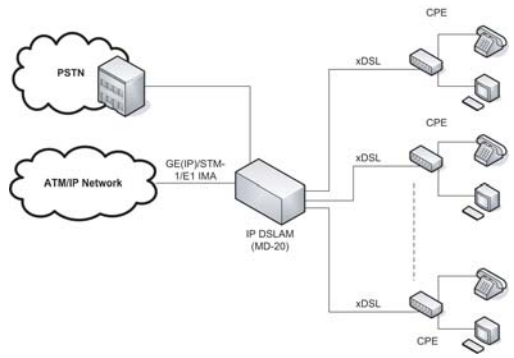
Digital Subscriber Line Access Multiplexer

The MD-20 is a mini-DSLAM designed for efficient scalability and easy deployment for access networks. This broadband access solution provides an exceptional way to extend ADSL reach further from central office DSLAM equipment to new customers, resulting in increased revenue generating service for both IP and ATM networks. The energy-efficient compact enclosure design fits perfectly inside temperature hardened and space limited rack space of telecommunication curbside cabinet.

Features

- Bring ADSL service to previously unreachable customers
- Supports ADSL, ADSL2, ADSL2+ via POTS/ISDN interface
- Provides 24 ~ 72 ports of ADSL in one 2U chassis
- Modular design with hot swappable and field replaceable units
- Build-in POTS/ISDN Splitters
- System Overheating Protection
- Full diagnostic and alarm reporting capability
- SNMP, Telnet, CLI and Web based management
- Dual A+B -48V DC power input terminal

Application



Specifications

General Specifications		
Power	DC	-48 (-42 — -56)VDC
Environment	Temperature	-40 — 65°C (Operating); 0 — 70°C (Storage)
	Humidity	5 — 95% non condensing
Power Consumption	130W (maximum)	
Dimensions(WxDxH)	482mm x 304mm x 88mm	
Weight	4.4 Kg with no units installed, fan card 2U: 0.25 Kg	
Compliance	ITU-T K.20, K.21, ETSI 300-019, 300-386, EN 60950, Conform to CE requirements	
MTBF	20150 hours	

Interface Cards	
Network Interface	STM-1
	8 x E1 IMA
	2 x 10/100/1000 Based-Tx or 2 x 1000 Base-FX SFP
Subscriber Interface 24 ports card	ADSL2+/POTS/ISDN (G.992.1 .2 .3 .5)
Service Characteristics	
ATM	QoS (UBR, rt-VBR, nrt-VBR, CBR)
	PVC default priority and PVC-to-VLAN mapping
	Traffic scheduling/shaping/policing
Ethernet	IEEE 802.1d Spanning tree protocol (STP)
	IEEE 802.3ad Link aggregation
	IEEE 802.1g port (Tag Based/ LAN)
	Security on console access
OSI Layer 2 Functionality	MAC filtering and count limit
	Access control list (ACL)
	Hardware-based multicasting
	Broadcast control and broadcast rate limit
	Port-based virtual local area network (VLAN)
	IGMP snooping v1 and v2
	SNMP v1 and v2c
	Remote Monitoring (1, 2, 3, 9 groups)
Management Information Base (MIB)	
RFC 2514, 2515 ATM MIB, RFC 1213 SNMP MIB II, RFC 1493 Bridge MIB, RFC 1643 Ethernet MIB, RFC 2674 Q MIB, RFC 1757 RMON MIB, group 1,2,3,9, IMA-MIB, SHDSL Line-MIB, ADSL Line MIB, CTC Union proprietary MIB	

Ordering Info

MD-20 Mini DSLAM Chassis	
MD-20-MA1A	19" 2U Rack mount Chassis Up to 3 slots + 1 Slot (for Network Interface card) With DC power & Cooling Fan& Filter
Trunk Card	
MD-00-GE1A	2 x 100/1000 Based-TX or 2 x SFP uplink Card (IP)
MD-00-IM8A	8 x E1 IMA Uplink card (ATM)
MD-00-ST1A	STM-1 155M uplink card (ATM)

Line Card	
MD-00-AL5A	ADSL 24L ETSI 270 Splitter Annex-A
MD-00-AL5B	ADSL 24L ISDN Spliter Annex-B
MD-00-SL6A	SHDSL 24L W/O WET Current Annex-A/B, 2 wire, ATM base
1.25G SFP	
SFM-7000-S85	MM, 550m, 850nm, LC, 8.5dBm, (w/o DD)
SFS-7010-L31	SM, 10km, 1310nm DFB, LC, 10.5dBm (w/o DD)
SFS-7040-L31	SM, 40km, 1310nm DFB, LC, 19dBm (w/o DD)
SFS-7080-Z55	SM, 80km, 1550nm DFB, LC, 23dBm (w/o DD)

TDM Modem Series

SHRM03-E1/ V35/ ET100

G.SHDSL Modem Concentrator

The SHRM03 offers Three different ways to connect customers over high-speed DSL services; TDM based G.703 E1, TDM based serial DCE port or TDM based Ethernet Bridge. The SHRM03 is equipped with an adaptive auto rate capability that identifies the maximum line rate supported by the copper loop. This powerful automatic configuration capability makes installation and service provisioning simple and painless. Further flexibility is provided by the ability to manually set the maximum speed at different levels for different customer-tailored service offerings. This Rack is 100% compatible with our SHDTU03 standalone CPE modem.

Features

- All interface connectors on the rear panel
- Central solution in standard 19 inch rack
- Downloadable software for easy upgrade
- E1 and fractional E1 capable
- Each line card supports two channels of single pair (two-wire) for E1/Datacom/Ethernet solution N x 64k rate selectable from 64kbps to 2.304Mbps
- Hot swappable cards and redundant (optional) power supplies
- Menu oriented console screens for ease of use
- Optional SNMP network management system card
- Up to 13 cards (26 loops) can be installed + 1 SNMP card

Specifications - Software

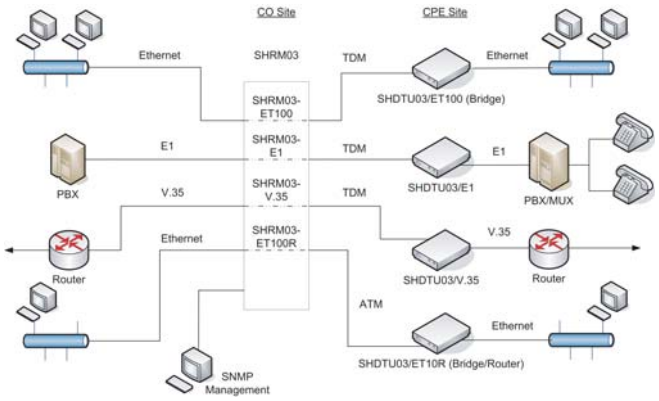
Software Specifcation		
Performance	SHDSL PM	ES-crc, SES-crc, UAS, LOSW seconds
	E1 PM	ES, SES, UAS seconds
	Current 15-minute period and 96 previous 15-minute periods of SHDSL and E1 performance parameters	
	Current 24-hour period and 7 previous 24-hour periods of SHDSL and E1 performance parameters	
Diagnostic	E1 line loopback	
	V.54 loopback	
	Local SHDSL loopback	
	Remote SHDSL loopback	
	Remote payload loopback (Specifications are subject to change without notice)	
LEDs indication	E1	PWR, SHDSL, FE1, LOF, LOS, TEST, LOOP, ALARM, and FAR ALARM
	V.35	PWR, SHDSL, TD, RD, CTS, TEST, LOOP, ALARM, and FAR ALARM
	Ethernet	PWR, SHDSL, 10M/ACT, 100M/ACT, COL, TEST, LOOP, ALARM, and FAR ALARM

Specifications

General Specification		
Power	AC 100V/ 220V, DC -48V	
Environment	Temperature	0 — 50°C (Operating); 20 — 70°C (Storage)
	Humidity	5% — 90% non-condensing
Power Cunsumption	100W	
Dimensions(WxDxH)	438 x 285 x 180mm	
Weight	6.5kg	

E1 Specifications		
Line code	HDB3/ AMI	
Data rate	64 — 2048kbps	
Operation	Full or Fractional	
Impedance	120 ohms balanced/ 75 ohms unbalanced	
Framing	Structured with or without CRC-4 or	
Timing	Internal clock or G.703 recovery	
Jitter performance	ITU-T G.823	
Connectors	BNC for unbalanced, 5 pin wire connector or RJ-45 for balanced	
Transmit level	Pulse amplitude	Nominal 2.37V+10% for 75 ohm
		Nominal 3.00V+10% for 120 ohm
	Zero amplitude	0.1V
Transmit frequency tracking	Internal timing	± 30ppm
	Loopback timing	± 50ppm
	External timing	± 100ppm
Ethernet Interface Specifications		
Standard	IEEE 802.3/IEEE 802.3u	
Encapsulation	Raw HDLC	
packet size	maximum 1536	
SHDSL Interface Specifications		
Standard	ITU-T G.991.2	
Line code	16 level Trellis coded PAM	
Data rate	64kbps — 2.304Mbps	
Support	ANSI (Annex A) and ETSI (Annex B)	
Datacom Interface Specifications		
Data Rate	64kbps — 2304kbps	
Connectors	HD26 (cable adapters available)	
Timing	Internal, External	

Application



Ordering Info

SHRM03-AC

SHRM03-SNMP

Rack Mount SHRM03 Chassis	
SHRM03-AA/CH	4U, 19" 14 slots Chassis for AC + AC Power
SHRM03-AD/CH	4U, 19" 14 slots Chassis for AC + DC Power
SHRM03-DD/CH	4U, 19" 14 slots Chassis for DC + DC Power
SHRM03-AC	AC100V, AC220V Power Module
SHRM03-SNMP	SNMP I/F card with MIB and Console cable

SHRM03-E1/2T

SHRM03-V35/2T

SHRM03-ET100/2T

Optional Line Card	
SHRM03-E1/2T	G.SHDSL (2W) E1 (2 channels) TDM line card with E1 connector adapters
SHRM03-V35/2T	G.SHDSL (2W) V35 (2 channels) TDM line card
SHRM03-ET100/2T	G.SHDSL (2W) 10/100Base TX Bridge (2 channels) TDM line card with RJ-45 adapters

TDM Modem Series

SHDTU03-E1

E1 SHDSL Modem

The SHDTU03-E1 connects customers to high-speed G.703 E1 services via TDM based G.SHDSL at up to 2.048Mbps. The SHDTU03-E1 is configured and managed via a menu-driven VT-100 compatible asynchronous terminal interface on RS-232. The SHDTU03-E1 acts as either a CO or CPE in point-to-point applications or as a CPE device when connected to our SHRM03 TDM based rack.

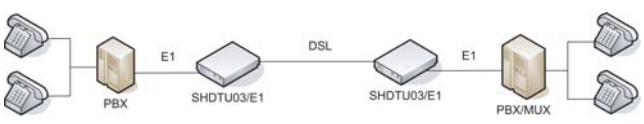
Features

- Adaptive rate installation maximizes data rate based on loop conditions
- Bandwidth guaranteed transmission equipment
- Can operate in back to back configurations
- Efficient single wire pair usage
- Fast and cost-effective provisioning of traditional or TDM leased line services
- Local management interface with LCD display
- Raw and time stamped statistics
- Remote loopback
- SHDSL Line performance monitoring
- Standard G.SHDSL (ITU G.991.2) support for improved reach/ speed and greater interoperability
- Use existing copper loop infrastructures
- Up to 2.048Mbps symmetrical service bit rate

Specifications

Line Rate	SHDSL per ITU G.991.2	
Coding	Trellis coded pulse amplitude modulation	
Support	ANSI (Annex A) and ETSI (Annex B)	
Payload rates	192kbps to 2.048Mbps	
Connector	RJ-45	
Framing	G.703/G.704 (unframed / framed)	
	CRC 4 enable/disable	
DSL Timing	Network (Recovery)/ Internal/ DTE	
G.703 Interface	RJ-48C for E1(120ohms) & BNC for E1 (75 ohms)	
Loopback	Local Loopback/ Digital Loopback	
	Remote Loopback/ Built-in bit error rate tester	
Performance Monitoring	ES, SES, UAS, Alarms, Errors for E1/T1*, SHDSL	
	Threshold Crossing Notification	
Power	AC	90 — 240VAC
	DC	-48VDC
Environment	Temperature	0 — 50°C (Operating); 20 — 70°C (Storage)
	Humidity	5% — 90% non-condensing
Power Cunsumption	10W	
Dimensions(WxDxH)	19.5cm x 16.8cm x 4.8cm	
Weight	850g	
Compliance	CE, FCC	

Application



Ordering Info

SHDTU03-E1/2T-AC	G.703 E1 interface, LCD panel & AC Type
SHDTU03-E1/2T-DC	G.703 E1 interface, LCD panel & DC Type

TDM Modem Series
SHDTU03-V35

Datacom SHDSL Modem

The SHDTU03-V35 connects customers to high-speed data communication services via TDM based G.SHDSL at up to 2.304Mbps. The SHDTU03-V35 is configured and managed via a menu-driven VT-100 compatible asynchronous terminal interface on RS-232. The SHDTU03-V35 acts as either a CO or CPE in point-to-point applications or as a CPE device when connected to our SHRM03 TDM based rack. This modem is equipped with an adaptive rate capability that identifies the maximum line rate supported by the copper loop. This powerful feature makes installation and service provisioning simple and painless.

Features

- Adaptive rate installation maximizes data rate based on loop conditions
- Bandwidth guaranteed transmission equipment
- Can operate in point-to-point configurations
- Efficient single wire pair usage
- Fast and cost-effective provisioning of traditional TDM leased line services
- Local management interface with LCD display
- Raw and time stamped statistics
- Remote loopback
- SHDSL Line performance monitoring
- Standard G.SHDSL (ITU G.991.2) support for improved reach/ speed and greater interoperability
- Use existing copper loop infrastructures
- Up to 2.304Mbps symmetrical service bit rate

Application

Specifications

Line Rate	SHDSL per ITU G.991.2	
Coding	Trellis coded pulse amplitude modulation	
Support	ANSI (Annex A) and ETSI (Annex B)	
Payload rates	192kbps to 2.304Mbps	
Connector	RJ-45	
DSL Timing	Network (Recovery)/ Internal/ DTE	
Loopback	Local Loopback/ Digital Loopback Remote Loopback/ Built-in bit error rate tester	
Performance Monitoring	ES, SES, UAS, Alarms, SHDSL Threshold Crossing Notification	
Power	AC	90 — 240VAC
	DC	-48VDC
Environment	Temperature	0 — 50°C (Operating); 20 — 70°C (Storage)
	Humidity	5% — 90% non-condensing
Power Cunsumption	10W	
Dimensions(WxDxH)	19.5cm x 16.8cm x 4.8cm	
Weight	850g	
Compliance	CE, FCC	

Ordering Info

SHDTU03-V35/2T-AC	G.703 V.35 interface, LCD panel & AC Type with DB25 Male to MB34 Female
SHDTU03-V35/2T-DC	G.703 V.35 interface, LCD panel & DC Type with DB25 Male to MB34 Female
SHDTU03-X.21/2T-AC	G.703 X.21 interface, LCD panel & AC Type with DB25 Male to DB15 Female Cable
SHDTU03-X.21/2T-DC	G.703 X.21 interface, LCD panel & DC Type with DB25 Male to DB15 Female
SHDTU03-449/2T-AC	G.703 449 interface, LCD panel & AC Type with DB25 Male to DB37 Female Cable
SHDTU03-449/2T-DC	G.703 449 interface, LCD panel & DC Type with DB25 Male to DB37 Female Cable
SHDTU03-530/2T-DC	G.703 530 interface, LCD panel & AC Type with DB25 Male to DB25 Female Cable
SHDTU03-530/2T-DC	G.703 530 interface, LCD panel & DC Type with DB25 Male to DB25 Female Cable

TDM Modem Series

SHDTU03-ET100

Ethernet SHDSL Modem

The SHDTU03-ET100 connects customers to Ethernet Bridging via TDM based G.SHDSL at up to 2.304Mbps. The SHDTU03-ET100 is configured and managed via a menu-driven VT-100 compatible asynchronous terminal interface on RS-232. The SHDTU03-ET100 acts as either a CO or CPE in point-to-point applications or as a CPE device when connected to our SHRM03 TDM based rack. This modem is equipped with an adaptive rate capability that identifies the maximum line rate supported by the copper loop. This powerful feature makes installation and service provisioning simple and painless.

Features

- Adaptive rate installation maximizes data rate based on loop conditions
- Bandwidth guaranteed transmission equipment
- Can operate in point-to-point configurations
- Efficient single wire pair usage
- Fast and cost-effective provisioning of traditional frame relay (FR or T-HDLC) or TDM leased line services
- Local management interface with LCD display
- Raw and time stamped statistics
- Remote loopback
- SHDSL Line performance monitoring
- Standard G.SHDSL (ITU G.991.2) support for improved reach/ speed and greater interoperability
- Use existing copper loop infrastructures
- Up to 2.304Mbps symmetrical service bit rate

Specifications

Line Rate	SHDSL per ITU G.991.2	
Coding	Trellis coded pulse amplitude modulation	
Support	ANSI (Annex A) and ETSI (Annex B)	
Payload rates	192kbps to 2.304Mbps	
Connector	RJ-45	
DSL Timing	Network (Recovery)/ Internal/ DTE	
Loopback	Local Loopback/ Digital Loopback Remote Loopback/ Built-in bit error rate tester	
Performance Monitoring	ES, SES, UAS, Alarms, SHDSL Threshold Crossing Notification	
Power	AC	90 — 240VAC
	DC	-48VDC
Environment	Temperature	0 — 50°C (Operating); 20 — 70°C (Storage)
	Humidity	5% — 90% non-condensing
Power Cunsumption	10W	
Dimensions(WxDxH)	19.5cm x 16.8cm x 4.8cm	
Weight	850g	
Compliance	CE, FCC	

Ordering Info

SHDTU03-ET100/2T-AC	10/100 Base-T Ethernet interface, LCD panel & AC Type
SHDTU03-ET100/2T-DC	10/100 Base-T Ethernet interface, LCD panel & DC Type

Application

ATM Modem Series

SHRM03-ET100R

G.SHDSL Modem Concentrator

The SHRM03 ATM based line card rack allows customers to concentrate their G.SHDSL ATM based bridge/router Ethernet lines into a central location with hot swappable capabilities and redundant power supplies. The SHRM03 ATM line card is equipped with two independent channels that support adaptive auto-rate, Annex A or Annex B, bridging or routing, and embedded SNMP, Telnet and Web interface for provisioning and management. This rack is 100% compatible with our SHDTU03/ET10R and ET10RS standalone cpe modems.

SHRM03-ET100R Line Card

Features

- All interface connections on the rear panel
- Central solution in 19" rack
- Software upgrade via TFTP or Web interface
- IP based in-band management
- Each card supports two channels of single pair (two wire) for Ethernet Bridging or Routing solution at nx64 rates up to 2.304Mbps.
- Hot swappable cards and redundant (optional) power supplies
- Web browser screens for easy use
- SNMP agent embedded in each channel
- Up to 13 cards (26 loops) may be placed in one rack

Specifications

General Specification		
Power	AC 100V/ 220V, DC -48V	
Environment	Temperature	0 — 50°C (Operating); 20 — 70°C (Storage)
	Humidity	5% — 90% non-condensing
Power Consumptin	100W	
Dimensions (WxDxH)	438 x 285 x 180mm	
Weight	6.5kg (empty chassis)	

Ordering Info

Rack Mount SHRM03 Chassis	
SHRM03-AA/CH	4U, 19" 14 slots Chassis for AC + AC Power
SHRM03-AD/CH	4U, 19" 14 slots Chassis for AC + DC Power
SHRM03-DD/CH	4U, 19" 14 slots Chassis for DC + DC Power
SHRM03-AC	AC100V, AC220V Power Module
SHRM03-ET100R	G.SHDSL (2loop/2W) 10/100Base-T Ethernet Router and Bridge (2 channels) ATM Base Line card

Specifications - SHRM03-ET100R

Routing
DHCP server, client and relay (RFC2131/ 2132)
DNS relay and caching (RFC1034/ 1035)
IP multicast and IGMP proxy (RFC1112/ 2236)
IP routing with static routing and RIPv1/ RIPv2 (RFC1058/ 2453)
NAT ALGs for ICQ/ Netmeeting/ MSN/ Yahoo Messenger
Network address translation (NAT/ PAT) (RFC1631)
Support IP/TCP/UDP/ARP/ICMP/IGMP protocols
Bridging
IEEE 802.1D transparent learning bridge
IEEE 802.1q VLAN
Spanning tree protocol
Security
Advanced Stateful packet inspection (SPI) firewall (Optional Firewall Router)
Application level gateway for URL and keyword blocking (Firewall Router)
DMZ host/ Multi-DMZ/Multi-NAT function
Natural NAT firewall
User access control: deny certain PCs access to Internet service (Firewall Router)
Virtual server mapping (RFC1631)
VPN pass-through for PPTP/ L2TP/ IPSec tunneling
Management
Easy-to-use web-based GUI for quick setup, configuration and management
Menu-driven interface/Command-line interface (CLI) for Telnet access
Password protected management and access control list for administration
SNMP management with SNMPv1/ SNMPv2 (RFC1157/ 1901/ 1905) agent and MIB II(RFC1213/ 1493)
Software upgrade via web-browser/ TFTP server
ATM
AAL5
OAM F5 AIS/RDI and loopback
Up to 8 PVCs
ATM QoS
CBR (Constant bit rate)
UBR (Unspecified bit rate)
VBR-rt (Variable bit rate real-time)
VBR-nrt (Variable bit rate non-real-time)
AAL5 Encapsulation
Classical IP over ATM (RFC 1577)
Ethernet over ATM (RFC 2684/1483)
PPP over ATM (RFC 2364)
VC multiplexing and SNAP/LLC
PPP
PPP over ATM for fixed and dynamic IP (RFC 2364)
PPP over Ethernet for fixed and dynamic IP (RFC 2516)
User authentication with PAP/CHAP/MS-CHAP

G.SHDSL Family

ATM Modem Series
SHDTU03-ET10R/ SHDTU03F-ET10R
SHDTU03A-ET10RS/ SHDTU03AF-ET10RS

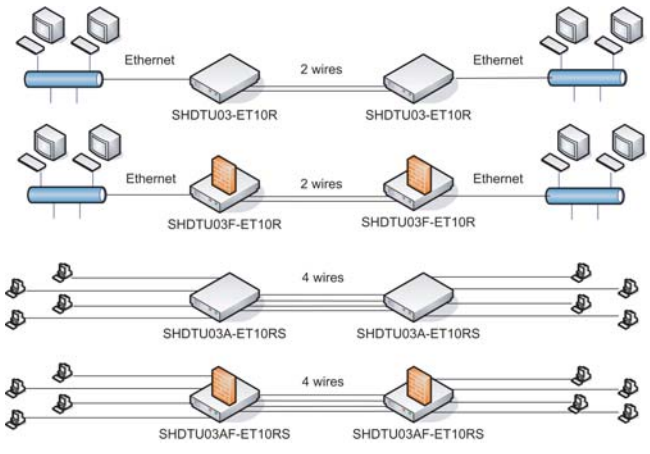
2-Wire/ 4-Wire SHDSL Router with single port or 4-port Switching Hub

The SHDTU03 ATM modem series are G.SHDSL2-wire/ 4-wire routers which comply with G.991.2 standards. The SHDTU03 family provides business-class, multi-range 64Kbps to 2.304/4.608Mbps payload rates over exiting single pair or two pairs copper wire. The SHDTU03, SHDSL router, is designed not only to optimize the service bit rate from central office to customer premises but also integrates high-end Bridging/ Routing capabilities with advanced functions such as Multi-DMZ, virtual server mapping and VPN pass-through. The SHDSL router allows customers to leverage the latest in broadband technologies to meet their growing data communication needs.

Features

- Adaptive rate installation maximizes data rate based on loop conditions
- Bandwidth guaranteed transmission equipment
- Can operate in point-to-point configurations
- Efficient single wire pair usage
- 'A' model support 4 wire operation
- Raw and time stamped statistics
- SHDSL Line performance monitoring
- Standard G.SHDSL (ITU G.991.2) support for improved reach/ speed and greater interoperability
- Use existing copper loop infrastructures
- Up to 2.304Mbps (2-wire) or 4.608Mbps (4-wire) symmetrical service bit rate

Application



Specifications

General Specification		
Standard	G991.2	
LEDs	General	PWR
	WAN	LNK, ACT
	LAN	10M/ACT, 100M/ACT (1-port router)
	SHDSL	ALM
Power	DC	-48VDC
Environment	Temperature	0 — 45°C (Operating); 20 — 70°C (Storage)
	Humidity	0% — 95% non-condensing
Power Cunsumption	9W	
Dimensions(WxDxH)	18.7cm x 14.5cm x 3.3cm	
Weight	400g	
Compliance	CE, FCC	
MTBF	TBA	

Ordering Info

SHDTU03-ET10R	Standalone 2-wire SHDSL router with single Ethernet port
SHDTU03-ET10RS	Standalone 2-wire SHDSL router with 4-port switching HUB
SHDTU03F-ET10R	Standalone 2-wire SHDSL router with firewall protection and single Ethernet port
SHDTU03F-ET10RS	Standalone 2-wire SHDSL router with firewall protection and 4-port switching HUB
SHDTU03A-ET10R	Standalone 4-wire SHDSL router with 4-port switching HUB
SHDTU03A-ET10RS	Standalone 4-wire SHDSL router with single Ethernet port
SHDTU03AF-ET10R	Standalone 4-wire SHDSL router with firewall protection and single Ethernet port
SHDTU03AF-ET10RS	Standalone 4-wire SHDSL router with firewall protection and 4-port switching HUB

Single port rear

4-port rear

IDSL Modem Series
I-DSL128

2-wire 2B1Q Leased Line Modem

DSL128 (Network Termination Unit) is designed for high speed data communication and internetworking transport services. It utilizes 2B1Q line coding and echo cancellation technique for full duplex and synchronous data transmission over a 2-wire line up to 5.5 Km. I-DSL128 supports power-on self-test and diagnostic capability for optimal speed calibration and trouble shooting. The diagnostic capabilities include Analog loopback, Digital loopback and BER Test. I-DSL128 is elegantly designed and easy to operate.

Its front panel is equipped with one 16 x 2 LCD, 4 push-buttons for configuration and 9 LEDs for status indication. The configuration procedure goes through a friendly menu-driven program. I-DSL128 is designed and suitable for providing Remote Access, LAN/WAN interconnection, Host connection, Internet transport etc. meeting high speed data services.

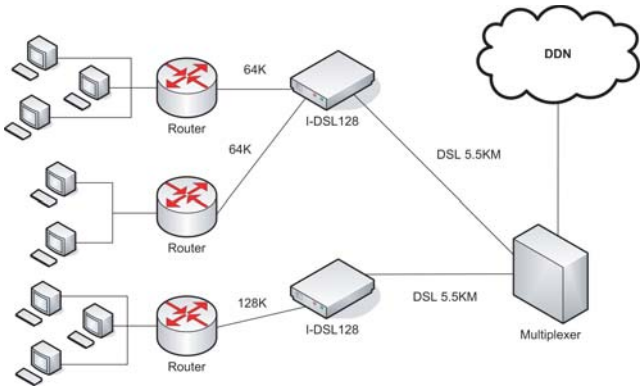
Features

- 2-wire full duplex operation
- DTE interface alternatives: EIA 530, RS449(via DB37), V.35 (via M34), V.36(via DB37)
- Line Coding: 2B1Q
- Menu-driven LCD (16 x 2), control panel for easy operation
- IRange: Up to 5.5Km over 26 gauge wire
- Synchronous: 64K or 128Kbps

Specifications

Network Interface		
Type	Full duplex with adaptive echo cancellation	
Line coding	2B1Q	
Line type	Unconditioned twisted pair, 19-26 AWG	
Surge protection	Meets FCC Part 68 subpart D	
Connector	RJ-11	
Diagnostics Test		
Loopbacks	Local Loopback	
	ITU-T V.54 DTE Loopback	
	ANSI T1.601 Payload Loopback	
Operation Range (BER<10 -7)		
2-wire mode	Up to 5.5Km over 26 gauge wire	
	Up to 7.0Km over 24 gauge wire	
Customer DTE Interface		
Number of Ports	1+1(optional)	
Data Rate	64K or 128Kbps (synchronous)	
Connector	EIA530, RS449 (via DB37 adapter), V.35 (via M34 adapter), V.36 (via DB37 adapter)	
Gereral Specifications		
Standard	TBA	
Clock Source	Internal, Line, DTE-A or DTE-B	
Keypad	4 operation keys	
LEDs	PWR, ACT, TST, DTE-A [TD, RD, ERR], DTE-B [TD, RD, ERR]	
Power	AC	100 — 240VAC
Environment	Temperature	0 — 50°C (Operating); -20 — 65°C (Storage)
	Humidity	10 — 90% non condensing
Power Consumption	10W	
Dimensions(WxDxH)	19.5cm x 16.8cm x 4.8cm	
Weight	850g	
Compliance	CE, FCC	
MTBF	TBA	

Application



Ordering Info

I-DSL128-AC	Standalone IDSL Modem, 2-wire, 2B1Q leased line CPE modem with one DTE interface connector, LCD panel, AC type

IDSL Modem Series

I-DSL64

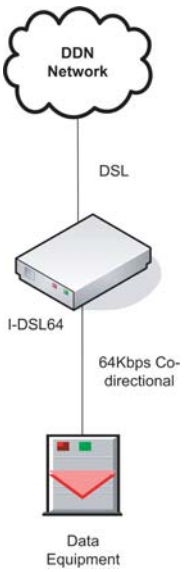
2-wire 2B1Q Leased Line Modem

I-DSL64 is a G.703 64K co-directional Network Termination Unit designed for low-speed data communication and internetworking transport services. It utilizes 2B1Q line coding and echo cancellation technique for full duplex and synchronous data transmission over a 2-wire line up to 5.5 Km. I-DSL64 supports power-on self-test and diagnostic capability for troubleshooting. The diagnostic capabilities include analog loopback, digital loopback and BERT TEST. I-DSL64 is an easy to operate and elegantly designed equipment. Its front panel is equipped with one 2 x 16 LCD, 4 buttons for configuration and 7 LEDs for status indication. The configuration procedure goes through a friendly menu-driven program.

Features

- 2-wire full duplex operation
- Line coding: 2B1Q
- Menu-driven LCD (2 x 16), control panel for easy operation
- Range: Up to 5.5Km over 26 gauge wire
- Synchronous: G.703/64KCo-directional

Application



Specifications

Network Interface		
Type	Full duplex with adaptive echo cancellation	
Line coding	2B1Q	
Line type	Unconditioned twisted pair, 19-26 AWG	
Surge protection	Meets FCC Part 68 subpart D	
Connector	RJ-11	
Diagnostics Test		
Loopbacks	Local Loopback	
	ANSI T1.601 Payload Loopback	
Operation Range (BER<10 -7)		
2-wire mode	Up to 5.5Km over 26 gauge wire	
	Up to 7.0Km over 24 gauge wire	
Customer G703/64K Co-directional interface		
Data rate	64K	
Connector	DB15 Female	
Line Code	Co-directional	
Gereral Specifications		
Standard	G.703	
LEDs	PWR, ERR, SYNC, BERT, Tx, Rx	
Power	AC	90 — 240VAC
	DC	-48VDC
Environment	Temperature	5 — 50°C (Operating); -20 — 65°C (Storage)
	Humidity	10 — 90% non condensing
Power Consumption	10W	
Dimensions(WxDxH)	19.5cm x 16.8cm x 4.8cm	
Weight	850g	
Compliance	CE, FCC	
MTBF	TBA	

Ordering Info

I-DSL64	Standalone IDSL Modem, 2-wire, 2B1Q leased line CPE modem, support G.703/64 co-directional transmission LCD panel, support AC or DC type.